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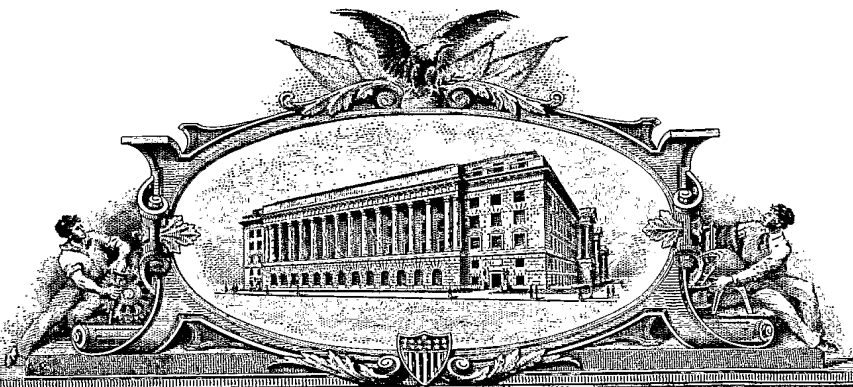
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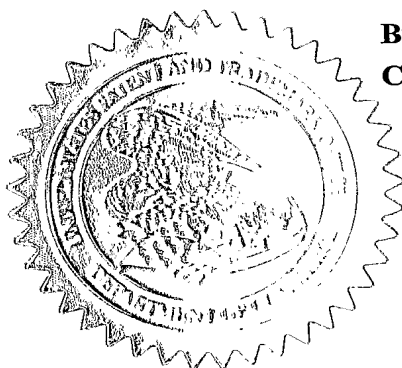
**May 20, 2005**

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**APPLICATION NUMBER: 60/553,937**

**FILING DATE: March 18, 2004**

*PCT/CA05/00412*



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13281 U.S. PTO

PTO/SB/16 (01-04)

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## PROVISIONAL APPLICATION FOR PATENT COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53(c).

Express Mail Label No.

19587 U.S. PTO  
60/553937

031804

INVENTOR(S)					
Given Name (first and middle (if any))		Family Name or Surname		Residence (City and either State or Foreign Country)	
Nigel Doug		Boast Heselton		Kelowna, BC, Canada Surrey, BC, Canada	
Additional inventors are being named on the _____ separately numbered sheets attached hereto					
TITLE OF THE INVENTION (500 characters max)					
METHOD AND APPARATUS FOR THE USE OF OZONE AS A VERICIDE					
Direct all correspondence to: CORRESPONDENCE ADDRESS					
<input type="checkbox"/> Customer Number: _____					
OR					
<input checked="" type="checkbox"/> Firm or Individual Name Fasken Martineau DuMoulin LLP					
Address 1075 West Georgia Street					
Address Suite 2100					
City Vancouver		State BC	Zip V6B 3G2		
Country Canada		Telephone 604.631.4743	Fax 604.632.4743		
ENCLOSED APPLICATION PARTS (check all that apply)					
<input checked="" type="checkbox"/> Specification Number of Pages 3					
<input type="checkbox"/> Drawing(s) Number of Sheets _____					
<input type="checkbox"/> Application Data Sheet. See 37 CFR 1.76					
<input type="checkbox"/> CD(s), Number _____					
<input checked="" type="checkbox"/> Other (specify) Research & Analysis Report (32 pages)					
METHOD OF PAYMENT OF FILING FEES FOR THIS PROVISIONAL APPLICATION FOR PATENT					
<input checked="" type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27.					
<input checked="" type="checkbox"/> A check or money order is enclosed to cover the filing fees.					
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FILING FEE Amount (\$) 80.00					
The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.					
<input checked="" type="checkbox"/> No.					
<input type="checkbox"/> Yes, the name of the U.S. Government agency and the Government contract number are: _____					

[Page 1 of 2]

Respectfully submitted,

SIGNATURE

TYPED or PRINTED NAME Frederick Kaufman

TELEPHONE 604.631.4743

Date 03/17/2004

REGISTRATION NO. 44444

(if appropriate)

Docket Number: TRE00072

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**FEE TRANSMITTAL**  
**for FY 2004**

Effective 10/01/2003. Patent fees are subject to annual revision.

☒ Applicant claims small entity status. See 37 CFR 1.27**TOTAL AMOUNT OF PAYMENT** (\$)**80.00****Complete if Known**

Application Number	
Filing Date	
First Named Inventor	Boast, Nigel et al
Examiner Name	
Art Unit	
Attorney Docket No.	TRE00072

**METHOD OF PAYMENT (check all that apply)**☐ Check ☐ Credit card ☒ Money Order ☐ Other ☐ None☐ Deposit Account:Deposit  
Account  
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**FEE CALCULATION****1. BASIC FILING FEE**

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid
1001 770	2001 385	Utility filing fee	
1002 340	2002 170	Design filing fee	
1003 530	2003 265	Plant filing fee	
1004 770	2004 385	Reissue filing fee	
1005 160	2005 80	Provisional filing fee	80.00
<b>SUBTOTAL (1)</b>			<b>(\$ 80.00)</b>

**2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE**

Total Claims	Extra Claims	Fee from below	Fee Paid
Independent	-20** =	X	
Multiple Dependent	-3** =	X	

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid
1202 18	2202 9	Claims in excess of 20	
1201 86	2201 43	Independent claims in excess of 3	
1203 280	2203 145	Multiple dependent claim, if not paid	
1204 86	2204 43	** Reissue independent claims over original patent	
1205 18	2205 9	** Reissue claims in excess of 20 and over original patent	
<b>SUBTOTAL (2)</b>			<b>(\$ )</b>

\*\*or number previously paid, if greater; For Reissues, see above

**FEE CALCULATION (continued)****3. ADDITIONAL FEES**

Large Entity Small Entity

Fee Code (\$)	Fee Code (\$)	Fee Description	Fee Paid
1051 130	2051 65	Surcharge - late filing fee or oath	
1052 50	2052 25	Surcharge - late provisional filing fee or cover sheet	
1053 130	2053 130	Non-English specification	
1812 2,520	1812 2,520	For filing a request for ex parte reexamination	
1804 920*	1804 920*	Requesting publication of SIR prior to Examiner action	
1805 1,840*	1805 1,840*	Requesting publication of SIR after Examiner action	
1251 110	2251 55	Extension for reply within first month	
1252 420	2252 210	Extension for reply within second month	
1253 950	2253 475	Extension for reply within third month	
1254 1,480	2254 740	Extension for reply within fourth month	
1255 2,010	2255 1,005	Extension for reply within fifth month	
1401 330	2401 165	Notice of Appeal	
1402 330	2402 165	Filing a brief in support of an appeal	
1403 290	2403 145	Request for oral hearing	
1451 1,510	2451 1,510	Petition to institute a public use proceeding	
1452 110	2452 55	Petition to revive - unavoidable	
1453 1,330	2453 665	Petition to revive - unintentional	
1501 1,330	2501 665	Utility issue fee (or reissue)	
1502 480	2502 240	Design issue fee	
1503 640	2503 320	Plant issue fee	
1460 130	2460 130	Petitions to the Commissioner	
1807 50	2807 50	Processing fee under 37 CFR 1.17(q)	
1806 180	2806 180	Submission of Information Disclosure Stmt	
8021 40	28021 40	Recording each patent assignment per property (times number of properties)	
1809 770	2809 385	Filing a submission after final rejection (37 CFR 1.129(a))	
1810 770	2810 385	For each additional invention to be examined (37 CFR 1.129(b))	
1801 770	2801 385	Request for Continued Examination (RCE)	
1802 900	2802 900	Request for expedited examination of a design application	

Other fee (specify)

\*Reduced by Basic Filing Fee Paid

**SUBTOTAL (3)** (\$)

(Complete if applicable)

<b>SUBMITTED BY</b>		<b>Registration No.</b> 44444	<b>Telephone</b> 604.631.4743
<b>Name (Print/Type)</b>	Frederick Kaufman	<b>Attorney/Agent</b>	
<b>Signature</b>	<i>Frederick Kaufman</i>	<b>Date</b>	03/17/04

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19587 U.S. PTO  
60/553937



March 17, 2004  
File No.: TRE00072

**BY COURIER**

U.S. Patent and Trademark Office  
2011 South Clark Place, Customer Window  
Mail Stop Provisional Patent Application  
Crystal Plaza Two, Lobby, Room 1B03  
Arlington, Virginia 2202

Dear Sirs/Mesdames:

**Re: New Provisional Patent Application**  
**Title: METHOD AND APPARATUS FOR**  
**THE USE OF OZONE AS A VERICIDE**  
**Inventors: Boast, Nigel et al.**

We enclose the following documents for filing in the U.S. Patent and Trademark Office:

1. Fee Transmittal;
2. Provisional Application for Patent Cover Sheet
3. Specification, together with Research & Analysis Report; and
4. Money Order in the amount of \$80.00 in payment for the prescribed fees.

Thank you for your assistance.

Yours truly,

**FASKEN MARTINEAU DuMOULIN LLP**

Doran Ingalls

DJI/rat  
Encl.

DM\_VAN/TRE0035-TRE00072/6156140.1

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## **Method and Apparatus for the Use of Ozone as a Vericide**

### **ECONOMIC SOLUTIONS FOR THE TREATMENT OF SARS AND OTHER VIRUSES & BACTERIA IN THE HOSPITALITY & OTHER INDUSTRIES**

#### **The Problem.**

- High global people traffic spreading emerging viruses.
- Emerging viruses such as SARS have high morbidity and mortality and can be difficult to treat.
- Virtually impossible to screen infected people and prevent them from spreading the disease.
- High risk to the hospitality industry, leading to reduced earnings and share prices of public companies in the hospitality sector.
- Other sectors such as prisons, elderly care facilities; airports and facilities used for disease control require improved cost-effective disinfection procedures to reduce the spread of disease.

The aggressive spread of SARS, an emerging virus, from Asia to other countries including Canada has occasioned considerable expenses and opportunity costs to the airline, hospitality and tourism industries as well as the health care industry. Consequently, the spread of SARS has had a devastating effect on affected countries' economies.

SARS and other emerging viruses are not the only viruses of concern. A variety of airborne, gastroenteric and enteric viruses, including varicella zoster (chicken pox), measles virus, rhinovirus (cold), influenza virus (flu), poliovirus, rotavirus, hepatitis A, norwalk virus, adenovirus, and bacteria all represent risks of contagion and infection.

Ozone has long been recognized as an effective biocide (a biochemical disinfectant) or vericide, and also a powerful deodorizer, having a number of attractive features:

- Pervasive:** Ozone is all pervasive in a closed space.
- Efficient:** Ozone is highly effective as a virucide, and is cheap to administer.
- Simple:** Installation set up and operation of ozone generators is simple.
- Affordable:** Amortizing the cost of the solution over a 4 year time period, taking into account industry standard vacancy rates, gives a cost at less than 20 cents a night.

The concentrations and exposure times required for ozone to be an effective disinfectant, and hence biocide, are known to be toxic for humans. Government agencies have therefore strongly discouraged the use of ozone to in indoor spaces. See the attached document entitled "Ozone: A Virucidal Agent for Conventional and Emerging Viruses" (referred to herein as the "Research Report") for further details.

### **The Solution- The safe use of ozone as a virucide.**

The present invention comprises portable equipment and apparatus, specifications and operating procedures to provide adequate ozone exposure of indoor spaces to achieve an effective degree of sanitization or sterilization, followed by removal or acceleration of the half life of ozone into oxygen, and the dissipation or removal of any gaseous by-products of reaction with areas exposed to ozone

The invention includes identifying the variables and co-variables impacting the safe and effective use of ozone as a vericide in the hospitality and other industries. In summary, the invention provides for;

1. Use of corona and other types of ozone generating equipment, suitably adapted to optimize the effects of rapid, and uniform elevation of precise ozone levels for use as a biocide, in conjunction with such applications for use as a biocide on specific room configurations and on specific, and common surface areas in the hospitably and other target industries.
2. The use of such apparatus described in para 1 above and any other apparatus, including measurement devices, to control and maintain optimum concentrations of ozone to ensure that the ozone is effective over measured time periods to act as a vericide or biocide.
3. Also to simultaneously provide during such time (when ozone reaches dangerous levels to humans) that various safeguards and safety procedures are available to prevent unnecessary and harmful exposure to humans.
4. Thereafter, the acceleration of the half-life of ozone and its dissipation after its use as a biocide, including the rapid consumption of gaseous aldehyde by-products to reduce their concentrations to levels accepted as safe for human exposure.

As an example, the method may include the following steps:

- a. Inserting a suitably adapted portable ozone generator in a closed environment, such as a hotel room;
- b. Elevating and maintaining ozone levels in the closed environment to a level sufficient to act as a vericide taking into account the humidity, size and configuration, surface areas, and airflow of the closed environment;
- c. Using devices and procedures to restrict access to the closed environment while the ozone levels are elevated to prevent exposure when the ozone levels are dangerously high; and)
- d. Removing the portable ozone generator from the closed environment after the biocide process.
- e. Directly, thereafter accelerating the half like of ozone or consuming the ozone and gaseous aldehyde by-products (possibly including the use of a catalyst) for a period of time taking into account the ozone levels, the humidity, the airflow and the size of the closed environment, and surface areas, until the ozone level is below toxic levels to humans.

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- f. Using devices and procedures to restrict access to the closed environment while the ozone levels are being lowered to prevent exposure when the ozone levels are dangerously high.